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CHARLES RICHARD VAN HISE

1857-1918

My first impressions of Van Hise were received from the gifted and lamented Irving, when we were close colleagues on the Wisconsin Geological Survey, and when young Van Hise was a student of geology and related sciences under Irving at the University of Wisconsin. Only those who had the good fortune to taste the rare flavor of the brusque humor of Irving can appreciate how charmingly he brought out the traits of his promising pupil as he told of their good-humored laboratory bouts over problems in hand. These little tales of the laboratory come back to me now as precious reminiscences at once of the trainer and the trained; as also of the crude state of petrological technique with which they had to struggle. It was just at the time when the polarizing microscope was coming into use in America in the examination of thin slices of crystalline rocks, and when only a few of the better-trained and bolder young men were venturing to try the new art. Young Van Hise, working under Irving on the crystalline rocks of central Wisconsin, came to think that he had discovered a new characteristic of a certain constituent under study and became sanguine that it would prove distinctive and constitute a contribution of some notable value at that early stage of the new art. He was naturally elated and confident, but Irving, playing the part of the conservative and critical trainer, kept the young enthusiast's elation in curb by all sorts of objections, real and fanciful, and made light of the arguments he urged in support of his claims; but Van Hise held his ground sturdily and returned undauntedly to his lathe and his microscope to search out new evidences and to strengthen old ones until, in due time, he made good against all the probings and humorous pooh-poohings of his instructor.

This earliest picture of Van Hise's sturdiness of mind and invincible industry—reaffirmed as it has been so often in our long, intimate acquaintance since—has always seemed to me to portray

one of the most salient traits of his strong personality. He always seemed to realize that one must dig to discover, and that after he had brought forth his results and built them into a logical structure there would still be winds that would blow and storms that would beat and that, as a matter of course, the world would always be probing and pooh-poohing whatever he advanced, and so it was for him to lay the foundations so well and to brace the parts so firmly that the structure could meet the stress sure to be brought to bear upon it. Thus too he seemed quite willing to have his products go to the test and quite ready to accept the issue. This intellectual sturdiness and steadfastness, abetted by an instinctive adherence to purpose, stand out as conspicuous traits in the whole career of President Van Hise.

When he, in his turn, became an instructor, he repaid his debt to Irving by inspiring a gifted student of his own, young C. K. Leith, who in after years became his own close companion and co-worker. These three names, Roland Duer Irving, Charles Richard Van Hise, and Charles Kenneth Leith, will always stand together in the geology of the central crystalline area of our continent as a scientific triumvirate. Their great work is so intertwined that no one may completely separate it. Of this gifted trio Van Hise formed the middle bond.

The dominant qualities we have noted appear in quite another form; there was geographic persistence and centralization. It is a rather notable fact that from birth to death Van Hise's great activities, notwithstanding their breadth, clustered about his early home and centered in his native state. He was born at Fulton, Wisconsin, not thirty miles from his final resting place at Madison. His higher educational career began and ended at the University of his native state, to whose greatness he largely contributed. His scientific researches started with studies on the ancient rocks that form the nucleus of "Isle Wisconsin," and he seems ever to have come back to its symmetrical structure as a geologic standard. His public service, broad as humanity though it was, had its center and spring in the higher welfare of the people of Wisconsin and of the great commonwealth to which it belongs.

The academic career of Van Hise was a steady ascent; he passed upward easily and naturally from student in mechanical engineering, 1875-79, to instructor in metallurgy, 1879-83; thence to assistant professor, 1883-86; to professor, 1886-88; to professor of mineralogy, 1888-90; to professor of Archaean and applied geology, 1890-1903; and thence to the presidency of his Alma Mater in 1903, which he held until his death in 1918. He gave collateral academic service at the University of Chicago as non-resident professor of structural geology from 1890 to 1903.

His scientific career was a similar ascent from state and interstate relations to national and international relations. His early scientific work was connected with the State Geological Survey of Wisconsin and related to the crystalline formations of the central and northern part of the state, particularly the iron- and copper-bearing series. At the close of the State Survey these studies were transferred without interruption to the United States Survey and were steadily broadened to include other regions. He worked in close association with Irving until the latter's untimely death in 1890, when he succeeded to the direction of their common governmental work on the pre-Cambrian formations in the Lake Superior region and elsewhere.

The investigation of the crystalline rocks of the Basement Complex was the chief geologic task chosen by Dr. Van Hise. It is needless to say that it was pursued with characteristic ardor and enthusiasm until he was called to the presidency of the University of Wisconsin in 1903. The chief results of these geologic investigations appear in a series of large monographic volumes that stand as a monument of persistent industry and commanding ability. The more important of these are: *The Penokee Iron Bearing Rocks of Michigan and Wisconsin* (1892) [with Roland Duer Irving]; *The Marquette Iron Bearing District of Michigan* (1897) [with W. S. Bayley and H. L. Smyth]; *The Menomonee Iron Bearing District of Michigan*; *Geology of the Lake Superior Region* (1911) [with Charles Kenneth Leith]; *The Archean and the Algonkian* (1892); *Principles of North American Pre-Cambrian Geology* (1896) [Appendix by Leander Miller Hoskins]; "Some Principles Governing the Deposition of Ores," *Journal of Geology* (1900); *A Treatise on Metamorphism*

(1904). To these major treatises are to be added many contributions to scientific periodicals and to scientific societies, as well as addresses and minor papers of other types.

These monumental studies made Van Hise *facile princeps* in the great field of pre-Cambrian geology. His work is too broad and complex for analysis here, but it may be said to rise into two climaxes, the first structural in nature and best expressed in the generalizations of his *Principles of Pre-Cambrian Geology*, the other chemico-physical and best set forth in his *Treatise on Metamorphism*. No treatment of either of these almost illimitable themes could in his day, or in our day, or in the near future, be the last word on these intricate subjects, but the contributions of Van Hise must always be regarded as marking a great epoch in the progress of the geology of the earliest terranes.

It was one of the cherished ambitions of Dr. Van Hise to reduce the complex phenomena of early crystalline geology to the principles of chemistry and physics. His effort to do this appears in clearest terms in his *Treatise on Metamorphism*, but it also runs as a strong vein through most of his later geologic writings. His generalizations respecting metamorphic processes are perhaps to be regarded as his broadest studies and as his climacteric contribution to geological science.

In attempting now to summarize his work we must not fail to observe that just as some of the fruitful work of Irving came over by inevitable inheritance into Van Hise's work and enriched it, so some of Van Hise's work has passed over into the still evolving work of Leith and lives in it and will perhaps prove to have some of its best fruits in it as it gradually evolves. We must at least note that the fruitage of Van Hise's planting is still growing and ripening.

In the very nature of the case, work on the great iron- and copper-bearing formations of the Lake Superior region always gave a notable economic bearing to the studies of Dr. Van Hise, and so, as his mind always sought principles and generalizations as the most vital embodiment of specific facts, he was naturally led to draw important conclusions relative to the principles of ore deposition, particularly those connected with secondary

concentration. These are perhaps summarized best in his address as retiring president of the American Association for the Advancement of Science, delivered at Denver in 1901.

With his acceptance of the presidency of the University of Wisconsin, Dr. Van Hise made a serious and at first confident effort to continue his geological researches in addition to his administrative duties, but he soon became so deeply engrossed in the humanistic phases of his new work that there was little time left for effective research in the old lines, and so his foremost interest shifted to the new work. The two interests, however, merged, in a measure, in his study of the application of natural resources to the general welfare of man, especially the conservation of natural resources, to which he made several notable contributions, among them the best book on the subject.

It was natural to pass from this special line of economic study to the broader aspects of current commercial and industrial questions, where his chief interest seems soon to have centered on the organization and co-ordination of effort as the key to the solution of the vexed questions that agitate this field. Most notable among his writings in this line perhaps is his book *Concentration and Control, a Solution of the Trust Problem in the United States*.

The utter breakdown of the basis on which the leading industrial legislation of the United States had been based, as soon as the stress of the Great War forced the nation itself to become a vast industrial institution, and the precipitate resort of the nation to practices diametrically opposed to those embodied in its previous legislation, deeply interested President Van Hise and obviously rendered his previous views on co-operation and co-ordination still more definite and strong. At any rate, these views were urged with still more vigor in his last years and formed the keynote of his book *Conservation and Regulation in the United States during the War*.

President Van Hise was profoundly interested in the war and made its probable intellectual, ethical, and economic outcome a special subject of study. As an administrator he vigorously marshaled the resources of the institution over which he presided in support of a strenuous prosecution of the war, while personally he contributed directly to it by lectures, papers, and other service

of notable value. His most conspicuous service was the aid he rendered in the conservation and allocation of our food resources. As the war drew to a close he became especially interested in the formation of a League of Nations. He prepared an address on this subject in which, with his ever-present regard for the practical and the attainable, he drew with greater definiteness than most other advocates the features which such a league should, in his judgment, embody. This was essentially his last contribution to the public welfare.

As the administrator of a great educational institution he naturally regarded science as the bed rock on which educational practice should be based, but he did not interpret science in any narrow or technical sense; he viewed it broadly as an expression of the carefully sifted and thoroughly proved reality disclosed in each and every field of inquiry. Research as an indispensable condition for discovering, demonstrating, and enlarging the body of science, as also for rescruinizing and renovating that which had previously passed for science, he held absolutely essential to a true university. He went farther and regarded it as essential also to education in all grades; for the renovation, the reconstruction, and the reshaping of the subject-matter taught in all the grades he held scarcely less vital to primary education and the public welfare than the addition of new subject-matter on the frontiers of knowledge. Important as he held original research to be, however, he held its application to the affairs of life and its incorporation into the lives of citizens as a working, guiding, inspiring factor to be an equally important function and an equally imperative obligation of a state institution. He was fortunate in coming into the presidency of an institution whose working lines were already set in the directions he approved. With this inherited advantage he pushed the university forward in its adopted lines with great success.

Respecting the debatable borderland between what is to be regarded as a permissible function of a state university, on the one hand, and what is to be regarded as non-permissible, or scarcely permissible—particularly in matters where organized bodies of citizens differ—on the other, President Van Hise was rather strongly

predisposed to magnify the former. He placed a distinctly broad interpretation on the functions of the university. He thought it not only the privilege but the duty of the university to give the state leadership even in lines regarded by some others as at least debatable. While this view did not go so far as to include the precise matters that divided the organized political parties, it yet did embrace matters closely akin to these, matters felt by some others to fall within the outer borders of party policy. The more conservative policy of leaving a clear margin of safety between the conceded fields of scientific inquiry in such matters, on the one hand—in which all right-minded citizens should concur—and the fields of party conflict, on the other, seemed to him to fall short of the full duty of the university to the state. As a natural result of his vigorous advocacy of some policies held by others as debatable, friction of the milder sort arose at times and made the path of his administration less smooth than it might have been under the more conservative policy, but this never went so far as to loosen the great hold of the institution or of its president on the affections and pride of the people of the state. His administration of the university was a declared success; both he and the university under his care exercised a profound influence on the intellectual and material progress of the state.

From May 29, 1857, to November 19, 1918, was the span of a remarkably fruitful career. It was, we grieve to note, two decades short of the full period of fruitfulness we had ground to hope for, but the vigor and intensity of the work, its solid nature, and its effective usefulness made good, in some large degree at least, the shortage in time. President Van Hise's contribution to the world has been very large and very rich.

His home life was singularly happy, though shadowed in his last years by the death of a beloved daughter. He leaves a devoted wife and two affectionate daughters. His personal qualities were of the highest order. He was a congenial companion in the office, the laboratory, and the field. His point of view was large and liberal, always incisive, often humorous. His convictions were strong, and the courage of his convictions never seemed to fail him.

was outspoken and manly in bearing, frank and strong in his

friendships. He respected the sincere, and called forth sincere respect in return.

He received a due measure of the honors his work merited. Williams, Dartmouth, Chicago, Yale, and Harvard conferred upon him their highest honorary degree. A long list of scientific societies in this country and abroad honored themselves and him with membership. He was chosen to the presidency of practically all the scientific societies to which he could be regarded as naturally eligible.

THOMAS CHROWDER CHAMBERLIN